[Letter to the Editor] Does conceptual compositionality affect language complexity? Comment on Lou-Magnuson and Onnis

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Does conceptual compositionality affect language complexity? Comment on Lou-Magnuson and Onnis

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In a recent article, Lou-Magnuson and Onnis (2018) focus attention on the fact that 'languages with smaller and more isolated speaker populations tend to make much greater use of morphology' (p. 2791). That languages pattern in this way is intriguing. For purposes of communication, syntax and morphology are equally effective; so it is not obvious why smaller speaker populations should exhibit this tendency. The authors claim to offer the 'first causal explanation' (p. 2792) for the effect, which is termed 'morphology bias' below. Their explanation takes the form of an agent-based simulation in which a process considered important for grammaticalization—reanalysis—is seen to increase an integer reflecting emergence of morphological structure. Testing of this model is said to reveal that '[s]mall populations with dense connections are able to support sustained reanalysis'. The conclusion then drawn is that that this causes '... the average level of morphological composition to be higher' (p. 2814).

The idea behind the authors' explanation is certainly appealing. As morphology is compositional structure that exists below the word-level, it is inherently more fine-grained than syntax. The greater inter-speaker familiarity that arises in smaller speaker populations can only facilitate the more fine-grained signalling that use of morphology entails. Morphology bias is broadly explicable in this sense. But the authors' claims regarding the role of reanalysis are problematic. In their view, when '... most speakers know and converse with each other, language learners are exposed to a high degree of variation in the input, which supports rich potential for reanalysis' (p. 2799). The sustained reanalysis that then results, it is argued, increases the average level of morphological composition. Several questions arise, however.

In what sense is morphology modeled? In the simulations described, neither meanings nor signals have compositional structure. Meanings are represented as single integers, while signals are represented as integer triples. The reason why compositional structure is built up in a particular way (i.e., why

morphology bias is seen) is explained using a model in which there is no actual composition of structure. Modeling composition in such an abstract way is not necessarily invalid. But, in this case, the strategy does raise questions. The integer value representing morphological structure is a count of reanalyses, and reanalysis in grammaticalization is an operation that does not create new structure. It only changes the classification of existing structure. The sense in which the model simulates increases in the 'average level of morphological composition' is far from clear, then.

Why assume reanalysis favors morphology? The authors take reanalysis to be one of three processes involved in grammaticalization, where extension and reduction are the other two. The activity of these processes within a language is seen to maintain a constant state of change, in which phrasal entities are compacted successively to form syntactic and then morphological entities (p. 2798-2799). The authors' propose that it is sustained acts of reanalysis that cause a language to develop higher levels of morphological composition. In their words, 'processes of extension and reduction directly feed reanalysis, and repeated reanalysis drives increased morphological complexity' (p. 2799). The difficulty is to see why the process they describe should create a bias towards use of morphology. Grammaticalization (reanalysis included) produces entities that may be either syntactic or morphological. There seems no reason why sustained reanalysis should serve to increase morphological complexity specifically.

Should the link between linguistic and conceptual composition be considered? The problem of explaining why certain languages are more morphologically complex touches on the general issue of why languages are compositional at all. What benefit does compositionality serve in the linguistic context? In the authors' view, its key advantage is that it makes language easier to acquire. As they see it, 'compositional structures appear to evolve as an efficient way to handle the information bottleneck that occurs between generations—a learner must induce the rules of a language from a small sample of observed linguistic usage' (p. 2791). This efficiency argument is seen to offer '... a clear understanding as to why compositionality emerges in communication systems' (p. 2791).

The problem here is the degree to which the authors overlook the cognitive aspect of the situation. It has long been recognized that the meanings language is used to express are compositional themselves. Like words and morphemes, they can be assembled into hierarchical/compositional forms of organization. In the view of many theorists, this cannot be insignificant, as it implies that the compositional structure of language must derive, in some way, from the compositional structure of the meanings/concepts/thoughts that are conveyed (e.g. Hauser et al., 2002, p. 1569; Jackendoff, 2003, p. 664; Chomsky, 2007, p. 22; Christiansen and Chater, 2008, p. 501; Pinker and Jackendoff, 2009, p. 465; Evans and Levinson, 2009, p. 444).

The authors' proposal is that sustained reanalysis increases morphological complexity, and the origin of compositional organization might seem irrelevant to this. But what is assumed does make a difference. With conceptual composition taken into account, hierarchical linguistic structures are potentially seen

as deriving from conceptual structures. This affects how we view syntax and morphology. It becomes more natural to see them as unified, and to think in terms, not of a dichotomy, but of a continuum of constructions.

This more general view is not inconsistent with the theory that greater inter-speaker familiarity facilitates more fine-grained (i.e., more morphological) communication. It does, however, argue against the authors' treatment of morphology bias as a dichotomy. It highlights the need to resolve the question of whether morphology bias manifests in a continuous way, i.e., whether relatively smaller speaker populations develop languages that use relatively *more* morphological structure. Also revealed to be important is the question of how conceptual and linguistic composition are linked (Thornton, 2016). Where a compositionally constructed phrase expresses a compositionally constructed concept, how are the two forms related? A better understanding of the relationship between compositional conceptualization and compositional language may lead to a more precise explanation of morphology bias.

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